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METHOCEL Food Products resource center

FAQs

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1. What exactly is methylcellulose and hydroxypropyl methylcellulose?

Methylcellulose (MC) and **hydroxypropyl methylcellulose** (HPMC) are the types of cellulose derivatives we make for food use. There are three different types of HPMC allowed for food use which vary according to the levels of methoxyl and hydroxypropyl we add to the cellulose we start with. A good way to think of MC and HPMC is the way you think of modified starches. We modify cellulose in much the same way starch and alginate companies modify starches and alginates. We treat it with chemicals to modify its properties so it's more useful for you to use.

Our MC is cellulose with methyl groups added and all the MC we make we designate with the letter A (A15, A4C, A40M, etc).

We make three different types of HPMC, all of which differ in levels of substitution of methyl and hydroxypropyl groups. We designate these by the letters E, F, and K (E50, F450, F220M, K100, K15M, etc).

The numbers in our products' names refer to the viscosity of the particular product in water. Viscosity simply refers to how thick a solution is. We can make any of our products with virtually no viscosity (like water) or with a lot of viscosity (like cold molasses). You can tell we used a lot of creativity when we came up with our naming system.

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2. What is a food gum?

Food gums are usually non-starch carbohydrate polymers used to thicken and stabilize food products. Some important gums are Alginates, Gum Arabic, Carrageenan, Guar, Locust bean, Microcrystalline cellulose, Carboxymethyl cellulose, Hydroxypropyl **methylcellulose**, **Methylcellulose**, **Pectin**, and Xanthan. Gelatin is often included in the gum category although it is a protein. Almost all gums thicken water and most of them have other unique features. Many gums gel and there are almost as many types of gel mechanisms as there are gums. Some gel by permanently cross-linking with cations. Some gel in the presence of dissolved solids and acids. Some gel at high or low temperatures.

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3. Are gums like starches?

Yes, gums are similar to starches in the way they are used to thicken and stabilize food products. They differ because they are typically used at much lower use levels and they are either non-caloric or minimally-caloric. The cellulosic gums are non-fermentable in the digestive tract and therefore, non-caloric. The non-cellulose gums typically ferment in the digestive tract, liberating a small caloric contribution. For the sake of simplicity, the government has decided that all food gums are assumed to contribute 2 Cal/gm for labeling purposes. However, there is a large variation in actual caloric contribution, ranging from zero to probably 4 Cal/gm, depending on the degree of fermentation the specific gum undergoes in the digestive tract. It is well known that some gums undergo significant fermentation.

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4. How does this compare to fiber?

It doesn't just compare to fiber, it is fiber. As described above, some gums are soluble fiber, some are insoluble. Some are fermentable and some are non-fermentable. It is quite a mixed group of polymers.

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5. How do you get it into solution?

Just like any other gum. First, they should be dispersed (particles separated from one another); then, they can be hydrated in cool or cold water. To disperse them, they can be dry-blended, mixed with oils, or mixed with corn syrups, propylene glycol, or glycerin. Plus, there's a trick that works

specifically for METHOCEL* food gums because they are NOT soluble in hot water: you can add them to a hot step in your process (at a temperature above the gel point of the grade of METHOCEL you are using), and the gum will readily disperse without agglomerating. The gum will not hydrate until you cool the product down. It's a good idea in fluid foods to maintain agitation during the cooling process so that the METHOCEL gum is well dispersed when it gets cool enough to hydrate.

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6. What countries are these products approved in?

METHOCEL* food gums are widely approved for food use.

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7. What's so special about gelling?

Gelling is unique because it's one more way that formulators can modify the texture of a food product. Think of grape jelly if it wasn't gelled. It would just be thick sweet grape juice. Talk about a messy sandwich. The gel produced by MC and HPMC is unique because it's only "on" at high temperatures and switches "off" as the temperature drops. This is counterintuitive and is a boon to food formulators. Think of all the stability you can build into foods that are baked, fried, grilled, broiled, sautéed, microwaved, or poached.

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8. How can heating something up make it gel?

Well it's all very scientific. Heat increases the kinetic energy of the water molecules surrounding the polymer chain, eventually overcoming the attractive force of the hydrogen bonds. Once this state is achieved, the polymer chain essentially dehydrates, leaving a de-watered and dejected, and let's face it – lonely – polymer chain. The polymer chain wants to hang around with somebody or something since water, his true love, left him. So the polymer chains associate with other polymer chains by weak cross-linking events (van der Waals forces) between the methyl substituted regions.

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9. Is the gel permanent?

No.

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10. Why do you have so many different types of METHOCEL?

We understand that people need different performance in their food products, some need a strong thermogel combined with a low viscosity, others need high viscosity with a soft thermogel...and that's just taking two of the properties of METHOCEL* Food Grade gum into account. Multiply that by surfactancy, water binding, freeze thaw stability, sugar tolerance, starch synergy and we're lucky we can make it with only 17 types.

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11. How do I choose which one to use?

First step would be to go back and view the individual [Food Applications](#). That will focus your options down quickly. If you want a more specific recommendation, email or call us. We'll be glad to help right away.

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12. Do I have to declare METHOCEL* Food Grade gum on the food label?

Yes. It's extremely rare that you can claim METHOCEL Food Grade gum only works as a processing aid. This stuff WORKS for its living.

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13. What are you doing up so late?

We're not, we're in a multitude of time zones. That means that you can get hold of a specialist about 18 hours a day and we're all addicted to emails so if you don't want to ring, email us.

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14. What's the best grade to use?

For what? Just like people, each METHOCEL* Food Grade gum has its own little peculiarities....OK large peculiarities. If you ask us, we'll ask you: What do you want it to do? What sort of process are you using? How much sugar, starch, water? What sort of final texture are you looking for? Hot? Cold? that sort of stuff, and then we'll suggest the best first shot to match your requirements. We're not being nosy, just trying to make sure you do the least amount of work to get the best performance.

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15. This is probably a stupid question but...

There are no stupid questions. At first the idea of reversible thermogellation is a bit difficult to get your head around. We've been working with it for years so it's nearly second nature. We're the experts in our field, you're the expert in your field. Meet us half way. Ask the questions.

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16. Why didn't it work?

It's usually because of one of two reasons:

- it wasn't hydrated at the right time

- you shouldn't have been trying METHOCEL* Food Grade gum because it doesn't do that.

If it's 1) we'll try and put you right on when and how to add it to a mix. Sometimes it's right at the beginning when everything is cold, sometimes right at the end, when everything is hot and sometimes it's in the middle. Trust us on this one, we may ask a lot of questions about processing but this knowledge can be critical to pinpoint the right method for you. Ask.

If it's 2) we'll likely advise you on what you should be trying instead of METHOCEL.

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17. How can I get the right sample?

Go to the [Technical Support](#) section of this web site.

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18. Is METHOCEL* Food Grade gum GMO-free?

Yes. METHOCEL is manufactured from highly purified wood pulp. The wood pulp comes from trees, none of which are genetically modified. If you want further documentation, view our [GMO-free status letter](#).

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19. Is METHOCEL* Food Grade gum Kosher?

Yes. All of our food grade products and pharmaceutical grade products are Kosher for Passover. If you want further documentation, view our [Kosher statement](#).

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20. Is METHOCEL* Food Grade gum Halal?

Yes. All of our food grade products and pharmaceutical grade products are Halal. If you want further documentation, view our [Halal statement](#).

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21. What if I want information on Quality?

To view downloadable information on our quality processes as well as certifications and food related documents such as shelf life, GMO-free documentation and more, please go to [Quality Programs](#).

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